

**Notice of Allowability**

Application No.

10/529,175

Examiner

Afroza Y. Chowdhury

Applicant(s)

TOKIOKA ET AL.

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 12/9/2007.
2. ☒ The allowed claim(s) is/are 1-3,7,8,11,12, and 15-17 now renumbered as 1-10.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some\* c) ☐ None of the:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date \_\_\_\_\_
- ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
- ☐ Notice of Informal Patent Application
- ☐ Interview Summary (PTO-413), Paper No./Mail Date \_\_\_\_\_
- ☐ Examiner's Amendment/Comment
- ☒ Examiner's Statement of Reasons for Allowance
- ☐ Other \_\_\_\_\_

## DETAILED ACTION

### *Allowable Subject Matter*

1. Claims 1-3, 7, 8, 11, 12, and 15-17 are allowed.
2. The following is an examiner's statement of reasons for allowance:

**"a current supply circuit providing an output current corresponding to digital data of n bits (wherein n is an integer not less than 2), comprising: a current driving device;**

**a current output node electrically connected to a first power supply node via said current driving device while current is being supplied by said current supply circuit;**

**a current control connected between a second power supply node and said current output node receiving digital data, corresponding to the digital data, for controlling the current flowing in a current path that includes said current output node; and extends between the first and second power supply nodes, while current is being supplied by said current supply circuit; and**

**a voltage regulating circuit receiving the digital data for forcing, after the current supplying starts, a change in voltage on said current output node, based on the digital data, said voltage regulating circuit including**

**a plurality of internal nodes corresponding to respective bits of the digital data, a plurality of voltage sources corresponding to respective internal nodes each voltage source independently supplying a respective voltage, a plurality of first switch elements respectively connected between respective**

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voltage sources and internal nodes, a plurality of capacitors connected to respective internal nodes, and

a plurality of second switch elements connected between said current output node and respective internal nodes, wherein each of said second switch elements turns on or off depending upon a corresponding bit of the digital data while current is being supplied by said current supply circuit” as in claim 1 and

“a display device producing a grayscale display corresponding to image data of  $n$  bits (wherein  $n$  is an integer not less than 2), comprising: a current supply circuit for supplying a display current corresponding to the image data;

a plurality of pixel circuits, each pixel circuit including a current-driven light-emitting device providing a brightness corresponding to a supplied current and a pixel driving circuit for supplying said current-driven light-emitting device with a current corresponding to the display current; and

a current data line for conveying the display current, which is provided supplied by said current supply circuit, to said plurality of pixel circuits, wherein said pixel driving circuit has a current driving device connected between said current data line and a first power supply node during a period in which the display current is conveyed to said pixel driving circuit, and supplying said current-driven light-emitting device with the current corresponding to the display current during the period, and said current supply circuit includes:

a current control circuit connected between a second power supply node and said current data line receiving the image data and controlling, in correspondence with the image data, the current flowing in a current path that includes said current data line; and extends between said first and second power supply nodes while the display current is being supplied by said current supply circuit; and

a voltage regulating circuit receiving the image data for forcing after supplying of the display current starts, a change in voltage on said current data line, based on the image data, said voltage regulating circuit including

a plurality of internal nodes corresponding to respective bits of the image data,

a plurality of voltage sources corresponding to respective internal nodes, each voltage source independently supplying a respective voltage, a plurality of first switch elements respectively connected between respective voltage sources and internal nodes, a plurality of capacitors connected to respective internal nodes, and

a plurality of second switch elements connected between said current output node and respective internal nodes, wherein each of said first switch elements turns on prior to supplying of the display current and turns off while the display current is being supplied, and

each of said second switch elements turns off in a period during which each of said first switch elements is turned on, and turns on or off depending on

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**a corresponding bit of the image data while the display current is being supplied"**

as in claim 11.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### ***Conclusion***


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Afroza Y. Chowdhury whose telephone number is 571-270-1543. The examiner can normally be reached on 7:30-5:00 EST, 5/4/9.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bipin Shalwala can be reached on 571-272-7681. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

AC  
1/31/2008



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